## SEQUENCE LISTING

- <110> NPS PHARMACEUTICALS, INC.
- <130> 241/086-CIP
- <140> TO BE ASSIGNED
- <141> HEREWITH
- <150> US 60/080,671
- <151> 1998-04-03
- <150> PCT/US99/07333
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- Ile Leu Gly Gly Leu Phe Pro Ile His Phe Gly Val Ala Ala Lys Asp 35 40 45
- Gln Asp Leu Lys Ser Arg Pro Glu Ser Val Glu Cys Ile Arg Tyr Asn 50 55 60
- Phe Arg Gly Phe Arg Trp Leu Gln Ala Met Ile Phe Ala Ile Glu Glu 65 70 75 80
- Ile Asn Ser Ser Pro Ala Leu Leu Pro Asn Leu Thr Leu Gly Tyr Arg 85 90 95
- Ile Phe Asp Thr Cys Asn Thr Val Ser Lys Ala Leu Glu Ala Thr Leu 100 105 110

- Ser Phe Val Ala Gln Asn Lys Ile Asp Ser Leu Asn Leu Asp Glu Phe
  115 120 125

  Cys Asn Cys Ser Glu His Ile Pro Ser Thr Ile Ala Val Val Gly Ala
- 130 135 140
- Thr Gly Ser Gly Val Ser Thr Ala Val Ala Asn Leu Leu Gly Leu Phe 145 150 155 160
- Tyr Ile Pro Gln Val Ser Tyr Ala Ser Ser Ser Arg Leu Leu Ser Asn 165 170 175
- Lys Asn Gln Phe Lys Ser Phe Leu Arg Thr Ile Pro Asn Asp Glu His
  180 185 190
- Gln Ala Thr Ala Met Ala Asp Ile Ile Glu Tyr Phe Arg Trp Asn Trp 195 200 205
- Val Gly Thr Ile Ala Ala Asp Asp Asp Tyr Gly Arg Pro Gly Ile Glu 210 215 220
- Lys Phe Arg Glu Glu Ala Glu Glu Arg Asp Ile Cys Ile Asp Phe Ser 225 230 235 240
- Glu Leu Ile Ser Gln Tyr Ser Asp Glu Glu Glu Ile Gln His Val Val
  245 250 255
- Glu Val Ile Gln Asn Ser Thr Ala Lys Val Ile Val Val Phe Ser Ser 260 265 270
- Gly Pro Asp Leu Glu Pro Leu Ile Lys Glu Ile Val Arg Arg Asn Ile 275 280 285
- Thr Gly Lys Ile Trp Leu Ala Ser Glu Ala Trp Ala Ser Ser Ser Leu 290 295 300
- Ile Ala Met Pro Gln Tyr Phe His Val Val Gly Gly Thr Ile Gly Phe 305 310 315 320
- Ala Leu Lys Ala Gly Gln Ile Pro Gly Phe Arg Glu Phe Leu Lys Lys 325 330 335
- Val His Pro Arg Lys Ser Val His Asn Gly Phe Ala Lys Glu Phe Trp 340 345 350
- Glu Glu Thr Phe Asn Cys His Leu Gln Glu Gly Ala Lys Gly Pro Leu 355 360 365
- Pro Val Asp Thr Phe Leu Arg Gly His Glu Glu Ser Gly Asp Arg Phe 370 380
- Ser Asn Ser Ser Thr Ala Phe Arg Pro Leu Cys Thr Gly Asp Glu Asn 385 390 395 400
- Ile Ser Ser Val Glu Thr Pro Tyr Ile Asp Tyr Thr His Leu Arg Ile

405	410	415

Ser Tyr Asn Val Tyr Leu Ala Val Tyr Ser Ile Ala His Ala Leu Gln 420 425 430

Asp Ile Tyr Thr Cys Leu Pro Gly Arg Gly Leu Phe Thr Asn Gly Ser 435 440 445

Cys Ala Asp Ile Lys Lys Val Glu Ala Trp Gln Val Leu Lys His Leu 450 455 460

Arg His Leu Asn Phe Thr Asn Asn Met Gly Glu Gln Val Thr Phe Asp 465 470 475 480

Glu Cys Gly Asp Leu Val Gly Asn Tyr Ser Ile Ile Asn Trp His Leu 485 490 495

Ser Pro Glu Asp Gly Ser Ile Val Phe Lys Glu Val Gly Tyr Tyr Asn 500 505 510

Val Tyr Ala Lys Lys Gly Glu Arg Leu Phe Ile Asn Glu Glu Lys Ile 515 520 525

Leu Trp Ser Gly Phe Ser Arg Glu Val Pro Phe Ser Asn Cys Ser Arg 530 540

Asp Cys Leu Ala Gly Thr Arg Lys Gly Ile Ile Glu Gly Glu Pro Thr 545 550 555 560

Cys Cys Phe Glu Cys Val Glu Cys Pro Asp Gly Glu Tyr Ser Asp Glu 565 570 575

Thr Asp Ala Ser Ala Cys Asn Lys Cys Pro Asp Asp Phe Trp Ser Asn 580 585 590

Glu Asn His Thr Ser Cys Ile Ala Lys Glu Ile Glu Phe Leu Ser Trp 595 600 605

Thr Glu Pro Phe 610

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Ile His Pro Pro Trp Glu Gly Gly Ile Arg Tyr Arg Gly Leu Thr Arg 35 40 Asp Gln Val Lys Ala Ile Asn Phe Leu Pro Val Asp Tyr Glu Ile Glu 55 Tyr Val Cys Arg Gly Glu Arg Glu Val Val Gly Pro Lys Val Arg Lys 70 Cys Leu Ala Asn Gly Ser Trp Thr Asp Met Asp Thr Pro Ser Arg Cys Val Arg Ile Cys Ser Lys Ser Tyr Leu Thr Leu Glu Asn Gly Lys Val 105 Phe Leu Thr Gly Gly Asp Leu Pro Ala Leu Asp Gly Ala Arg Val Asp 115 120 Phe Arg Cys Asp Pro Asp Phe His Leu Val Gly Ser Ser Arg Ser Ile 135 Cys Ser Gln Gly Gln Trp Ser Thr Pro Lys Pro His Cys Gln Val Asn 150 155 Arg Thr Pro His Ser Glu Arg Arg Ala Val Tyr Ile Gly Ala Leu Phe Pro Met Ser Gly Gly Trp Pro Gly Gly Gln Ala Cys Gln Pro Ala Val 185 Glu Met Ala Leu Glu Asp Val Asn Ser Arg Arg Asp Ile Leu Pro Asp 200 Tyr Glu Leu Lys Leu Ile His His Asp Ser Lys Cys Asp Pro Gly Gln 215 210 Ala Thr Lys Tyr Leu Tyr Glu Leu Leu Tyr Asn Asp Pro Ile Lys Ile 235 Ile Leu Met Pro Gly Cys Ser Ser Val Ser Thr Leu Val Ala Glu Ala Ala Arg Met Trp Asn Leu Ile Val Leu Ser Tyr Gly Ser Ser Ser Pro Ala Leu Ser Asn Arg Gln Arg Phe Pro Thr Phe Phe Arg Thr His Pro 280 Ser Ala Thr Leu His Asn Pro Thr Arg Val Lys Leu Phe Glu Lys Trp 300 290 295 Gly Trp Lys Lys Ile Ala Thr Ile Gln Gln Thr Thr Glu Val Phe Thr 305 Ser Thr Leu Asp Asp Leu Glu Glu Arg Val Lys Glu Ala Gly Ile Glu

330

325

Ile Thr Phe Arg Gln Ser Phe Phe Ser Asp Pro Ala Val Pro Val Lys 345 Asn Leu Lys Arg Gln Asp Ala Arg Ile Ile Val Gly Leu Phe Tyr Glu Thr Glu Ala Arg Lys Val Phe Cys Glu Val Tyr Lys Glu Arg Leu Phe 375 Gly Lys Lys Tyr Val Trp Phe Leu Ile Gly Trp Tyr Ala Asp Asn Trp 390 395 Phe Lys Ile Tyr Asp Pro Ser Ile Asn Cys Thr Val Asp Glu Met Thr 405 410 Glu Ala Val Glu Gly His Ile Thr Thr Glu Ile Val Met Leu Asn Pro 425 Ala Asn Thr Arg Ser Ile Ser Asn Met Thr Ser Gln Glu Phe Val Glu 440 Lys Leu Thr Lys Arg Leu Lys Arg His Pro Glu Glu Thr Gly Gly Phe 450 455 Gln Glu Ala Pro Leu Ala Tyr Asp Ala Ile Trp Ala Leu Ala Leu Ala Leu Asn Lys Thr Ser Gly Gly Gly Gly Arg Ser Gly Val Arg Leu Glu 485 490 Asp Phe Asn Tyr Asn Asn Gln Thr Ile Thr Asp Gln Ile Tyr Arg Ala 505 Met Asn Ser Ser Ser Phe Glu Gly Val Ser Gly His Val Val Phe Asp 520 Ala Ser Gly Ser Arg Met Ala Trp Thr Leu Ile Glu Gln Leu Gln Gly 535 530 Gly Ser Tyr Lys Lys Ile Gly Tyr Tyr Asp Ser Thr Lys Asp Asp Leu Ser Trp Ser Lys Thr Asp Lys Trp Ile Gly Gly Ser Pro Pro Ala Asp 565

Gln Thr Leu Val Ile Lys Thr Phe Arg Phe Leu Ser Gln Lys

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Pro His Leu Pro Arg Pro His Ser Arg Val Pro Pro His Pro Ser Ser 45

Glu Arg Arg Arg Ala Val Tyr Ile Gly Ala Leu Pro Pro Met Ser Gly Gly 55

Trp Pro Gly Gly Gln Ala Cys Gln Pro Ala Val Tyr Glu Leu Glu 80

Asp Val Asn Ser Arg Arg Arg Asp Ile Leu Pro Asp Tyr Glu Leu Lys Leu 11

Ile His His Asp Ser Lys Cys Asp Pro Gly Gln Ala Thr Lys Tyr Leu

100 105 110

Tyr Glu Leu Leu Tyr Asn Asp Pro Ile Lys Ile Ile Leu Met Pro Gly

Cys Ser Ser Val Ser Thr Leu Val Ala Glu Ala Ala Arg Met Trp Asn 130 135 140

Gln Arg Phe Pro Thr Phe Phe Arg Thr His Pro Ser Ala Thr Leu His
165 170 175

Asn Pro Thr Arg Val Lys Leu Phe Glu Lys Trp Gly Trp Lys Lys Ile 180 185 190

Ala Thr Ile Gln Gln Thr Thr Glu Val Phe Thr Ser Thr Leu Asp Asp 195 200 205

Leu Glu Glu Arg Val Lys Glu Ala Gly Ile Glu Ile Thr Phe Arg Gln
210 215 220

Ser Phe Phe Ser Asp Pro Ala Val Pro Val Lys Asn Leu Lys Arg Gln 225 230 235 240

Asp Ala Arg Ile Ile Val Gly Leu Phe Tyr Glu Thr Glu Ala Arg Lys
245 250 255

Val Phe Cys Glu Val Tyr Lys Glu Arg Leu Phe Gly Lys Lys Tyr Val 260 265 270 Trp Phe Leu Ile Gly Trp Tyr Ala Asp Asn Trp Phe Lys Ile Tyr Asp

Pro Ser Ile Asn Cys Thr Val Asp Glu Met Thr Glu Ala Val Glu Gly 290 295 300

His Ile Thr Thr Glu Ile Val Met Leu Asn Pro Ala Asn Thr Arg Ser 305 310 315 320

Ile Ser Asn Met Thr Ser Gln Glu Phe Val Glu Lys Leu Thr Lys Arg 325 330 335

Leu Lys Arg His Pro Glu Glu Thr Gly Gly Phe Gln Glu Ala Pro Leu 340 345 350

Ala Tyr Asp Ala Ile Trp Ala Leu Ala Leu Ala Leu Asn Lys Thr Ser 355 360 365

Gly Gly Gly Arg Ser Gly Val Arg Leu Glu Asp Phe Asn Tyr Asn 370 375 380

Asn Gln Thr Ile Thr Asp Gln Ile Tyr Arg Ala Met Asn Ser Ser Ser 385 390 395 400

Phe Glu Gly Val Ser Gly His Val Val Phe Asp Ala Ser Gly Ser Arg 405 410 415

Met Ala Trp Thr Leu Ile Glu Gln Leu Gln Gly Gly Ser Tyr Lys Lys 420 425 430

Ile Gly Tyr Tyr Asp Ser Thr Lys Asp Asp Leu Ser Trp Ser Lys Thr 435 440 445

Asp Lys Trp Ile Gly Gly Ser Pro Pro Ala Asp Gln Thr Leu Val Ile 450 455 460

Lys Thr Phe Arg Phe Leu Ser Gln Lys 465 470

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Pro Pro Pro Pro Ala Arg Leu Leu Leu Leu Leu Leu Leu Pro Leu Leu 20 25 30

Leu Pro Leu Ala Pro Gly Ala Trp Gly Trp Ala Arg Gly Ala Pro Arg

		35					40					45			
Pro	Pro 50	Pro	Ser	Ser	Pro	Pro 55	Leu	Ser	Ile	Met	Gly 60	Leu	Met	Pro	Leu
Thr 65	Lys	Glu	Val	Ala	Lys 70	Gly	Ser	Ile	Gly	Arg 75	Gly	Val	Leu	Pro	Ala 80
Val	Glu	Leu	Ala	Ile 85	Glu	Gln	Ile	Arg	Asn 90	Glu	Ser	Leu	Leu	Arg 95	Pro
Tyr	Phe	Leu	Asp 100	Leu	Arg	Leu	Tyr	Asp 105	Thr	Glu	Cys	Asp	Asn 110	Ala	Lys
Gly	Leu	Lys 115	Ala	Phe	Tyr	Asp	Ala 120	Ile	Lys	Tyr	Gly	Pro 125	Asn	His	Leu
Met	Val 130	Phe	Gly	Gly	Val	Cys 135	Pro	Ser	Val	Thr	Ser 140	Ile	Ile	Ala	Glu
Ser 145	Leu	Gln	Gly	Trp	Asn 150	Leu	Val	Gln	Leu	Ser 155	Phe	Ala	Ala	Thr	Thr 160
Pro	Val	Leu	Ala	Asp 165	Lys	Lys	Lys	Tyr	Pro 170	Tyr	Phe	Phe	Arg	Thr 175	Val
Pro	Ser	Asp	Asn 180	Ala	Val	Asn	Pro	Ala 185	Ile	Leu	Lys	Leu	Leu 190	Lys	His
Tyr	Gln	Trp 195	Lys	Arg	Val	Gly	Thr 200	Leu	Thr	Gln	Asp	Val 205	Gln	Arg	Phe
Ser	Glu 210	Val	Arg	Asn	Asp	Leu 215	Thr	Gly	Val	Leu	Tyr 220	Gly	Glu	Asp	Ile
Glu 225	Ile	Ser	Asp	Thr	Glu 230	Ser	Phe	Ser	Asn	Asp 235	Pro	Cys	Thr	Ser	Val 240
Lys	Lys	Leu	Lys	Gly 245	Asn	Asp	Val		Ile 250		Leu	Gly	Gln	Phe 255	
Gln	Asn	Met	Ala 260	Ala	Lys	Val	Phe	Cys 265	Суѕ	Ala	Tyr	Glu	Glu 270	Asn	Met
Tyr	Gly	Ser 275	Lys	Tyr	Gln	Trp	Ile 280	Ile	Pro	Gly	Trp	Tyr 285	Glu	Pro	Ser
Trp	Trp 290	Glu	Gln	Val	His	Thr 295	Glu	Ala	Asn	Ser	Ser 300	Arg	Cys	Leu	Arg
Lys 305	Asn	Leu	Leu	Ala	Ala 310	Met	Glu	Gly	Tyr	Ile 315	Gly	Val	Asp	Phe	Glu 320
Pro	Leu	Ser	Ser	Lys 325	Gln	Ile	Lys	Thr	Ile 330	Ser	Gly	Lys	Thr	Pro	Gln

Gln Tyr Glu Arg Glu Tyr Asn Asn Lys Arg Ser Gly Val Gly Pro Ser 340 345 350

Lys Phe His Gly Tyr Ala Tyr Asp Gly Ile Trp Val Ile Ala Lys Thr 355 360 365

Leu Gln Arg Ala Met Glu Thr Leu His Ala Ser Ser Arg His Gln Arg 370 380

Ile Gln Asp Phe Asn Tyr Thr Asp His Thr Leu Gly Arg Ile Ile Leu 385 390 395 400

Asn Ala Met Asn Glu Thr Asn Phe Phe Gly Val Thr Gly Gln Val Val 405 410 415

Phe Arg Asn Gly Glu Arg Met Gly Thr Ile Lys Phe Thr Gln Phe Gln 420 425 430

Asp Ser Arg Glu Val Lys Val Gly Glu Tyr Asn Ala Val Ala Asp Thr 435 440 445

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Leu Thr Ala Lys Phe Tyr Trp Ile Leu Thr Met Met Gln Arg Thr His
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Ser Gln Glu Tyr Ala His Ser Ile Arg Val Asp Gly Asp Ile Ile Leu 35 40 45

Gly Gly Leu Phe Pro Val His Ala Lys Gly Glu Arg Gly Val Pro Cys 50 55 60

Gly Glu Leu Lys Lys Glu Lys Gly Ile His Arg Leu Glu Ala Met Leu 65 70 75 80

Tyr Ala Ile Asp Gln Ile Asn Lys Asp Pro Asp Leu Leu Ser Asn Ile 85 90 95

Thr Leu Gly Val Arg Ile Leu Asp Thr Cys Ser Arg Asp Thr Tyr Ala
100 105 110

Leu	Glu	Gln 115	Ser	Leu	Thr	Phe	Val 120	Gln	Ala	Leu	Ile	Glu 125	Lys	Asp	Ala
Ser	Asp 130	Val	ГÀа	Cys	Ala	Asn 135	Gly	Asp	Pro	Pro	Ile 140	Phe	Thr	Lys	Pro
Asp 145	Lys	Ile	Ser	Gly	Val 150	Ile	Gly	Ala	Ala	Ala 155	Ser	Ser	Val	Ser	Ile 160
Met	Val	Ala	Asn	Ile 165	Leu	Arg	Leu	Phe	Lys 170	Ile	Pro	Gln	Ile	Ser 175	Tyr
Ala	Ser	Thr	Ala 180	Pro	Glu	Leu	Ser	Asp 185	Asn	Thr	Arg	Tyr	Asp 190	Phe	Phe
Ser	Arg	Val 195	Val	Pro	Pro	Asp	Ser 200	Туr	Gln	Ala	Gln	Ala 205	Met	Val	Asp
Ile	Val 210	Thr	Ala	Leu	Gly	Trp 215	Asn	Tyr	Val	Ser	Thr 220	Leu	Ala	Ser	Glu
Gly 225	Asn	Tyr	Gly	Glu	Ser 230	Gly	Val	Glu	Ala	Phe 235	Thr	Gln	Ile	Ser	Arg 240
Glu	Ile	Gly	Gly	Val 245	Cys	Ile	Ala	Gln	Ser 250	Gln	Lys	Ile	Pro	Arg 255	Glu
Pro	Arg	Pro	Gly 260	Glu	Phe	Glu	Lys	Ile 265	Ile	Lys	Arg	Leu	Leu 270	Glu	Thr
Pro	Asn	Ala 275	Arg	Ala	Val	Ile	Met 280	Phe	Ala	Asn	Glu	Asp 285	Asp	Ile	Arg
Arg	Ile 290	Leu	Glu	Ala	Ala	Lys 295	Lys	Leu	Asn	Gln	Ser 300	Gly	His	Phe	Leu
Trp 305	Ile	Gly	Ser	Asp	Ser 310	Trp	Gly	Ser	Lys	Ile 315	Ala	Pro	Val	Tyr	Gln 320
Gln	Glu	Glu	Ile	Ala 325	Glu	Gly	Ala	Val	Thr 330	Ile	Leu	Pro	Lys	Arg 335	Ala
Ser	Ile	Asp	Gly 340	Phe	Asp	Arg	Tyr	Phe 345	Arg	Ser	Arg	Thr	Leu 350	Ala	Asn
Asn	Arg	Arg 355	Asn	Val	Trp	Phe	Ala 360	Glu	Phe	Trp	Glu	Glu 365	Asn	Phe	Gly
Cys	Lys 370	Leu	Gly	Ser	His	Gly 375	Lys	Arg	Asn	Ser	His 380	Ile	Lys	Lys	Cys
Thr 385	Gly	Leu	Glu	Arg	Ile 390	Ala	Arg	Asp	Ser	Ser 395	Tyr	Glu	Gln	Glu	Gly 400
Lys	Val	Gln	Phe	Val 405	Ile	Asp	Ala	Val	Tyr 410	Ser	Met	Ala	Tyr	Ala 415	Leu

His Asn Met His Lys Asp Leu Cys Pro Gly Tyr Ile Gly Leu Cys Pro 420 425 430

Arg Met Ser Thr Ile Asp Gly Lys Glu Leu Leu Gly Tyr Ile Arg Ala
435
440
445

Val Asn Phe Asn Gly Ser Ala Gly Thr Pro Val Thr Phe Asn Glu Asn 450 455 460

Gly Asp Ala Pro Gly Arg Tyr Asp Ile Phe Gln Tyr Gln Ile Thr Asn 465 470 475 480

Lys Ser Thr Glu Tyr Lys Val Ile Gly His Trp Thr Asn Gln Leu His 485 490 495

Leu Lys Val Glu Asp Met Gln Trp Ala His Arg Glu His Thr His Pro 500 505 510

Ala Ser Val Cys Ser Leu Pro Cys Lys Pro Gly Glu Arg Lys Lys Thr 515 520 525

Val Lys Gly Val Pro Cys Cys Trp His Cys Glu Arg Cys Glu Gly Tyr 530 540

Asn Tyr Gln Val Asp Glu Leu Ser Cys Glu Leu Cys Pro Leu Asp Gln 545 550 555 560

Arg Pro Asn Met Asn Arg Thr Gly Cys Gln Leu Ile Pro Ile Ile Lys 565 570 575

Leu Glu Trp His Ser Pro Trp 580

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Phe Val Leu Gly Val Phe Ile Lys Phe Arg Asn Thr Pro Ile Val Lys

Ala Thr Asn Arg Glu Leu Ser Tyr Leu Leu Leu Phe Ser Leu Leu Cys

Cys Phe Ser Ser Ser Leu Phe Phe Ile Gly Glu Pro Gln Asp Trp Thr 50 55 60

Cys Arg Leu Arg Gln Pro Ala Phe Gly Ile Ser Phe Val Leu Cys Ile

65					70					75					80
Ser	Cys	Ile	Leu	Val 85	Lys	Thr	Asn	Arg	Val 90	Leu	Leu	Val	Phe	Glu 95	Ala
Lys	Ile	Pro	Thr 100	Ser	Phe	His	Arg	Lys 105	Trp	Trp	Gly	Leu	Asn 110	Leu	Gln
Phe	Leu	Leu 115	Val	Phe	Leu	Cys	Thr 120	Phe	Met	Gln	Ile	Val 125	Ile	Cys	Val
Ile	Trp 130	Leu	Tyr	Thr	Ala	Pro 135	Pro	Ser	Ser	Tyr	Arg 140	Asn	Gln	Glu	Leu
Glu 145	Asp	Glu	Ile	Ile	Phe 150	Ile	Thr	Cys	His	Glu 155	Gly	Ser	Leu	Met	Ala 160
Leu	Gly	Phe	Leu	Ile 165	Gly	Tyr	Thr	Cys	Leu 170	Leu	Ala	Ala	Ile	Cys 175	Phe
Phe	Phe	Ala	Phe 180	Lys	Ser	Arg	Lys	Leu 185	Pro	Glu	Asn	Phe	Asn 190	Glu	Ala
Lys	Phe	Ile 195	Thr	Phe	Ser	Met	Leu 200	Ile	Phe	Phe	Ile	Val 205	Trp	Ile	Ser
Phe	Ile 210	Pro	Ala	Tyr	Ala	Ser 215	Thr	Tyr	Gly	Lys	Phe 220	Val	Ser	Ala	Val
Glu 225	Val	Ile	Ala	Ile	Leu 230	Ala	Ala	Ser	Phe	Gly 235	Leu	Leu	Ala	Cys	Ile 240
Phe	Phe	Asn	Lys	Ile 245	Tyr	Ile	Ile	Leu	Phe 250						
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Val	Val	Cys	Leu 20	Ser	Phe	Asn	Ile	Tyr 25	Asn	Ser	His	Val	Arg 30	Tyr	Ile
Gln	Asn	Ser 35	Gln	Pro	Asn	Leu	Asn 40	Asn	Leu	Thr	Ala	Val 45	Gly	Cys	Ser
Leu	Ala 50	Leu	Ala	Ala	Val	Phe 55	Pro	Leu	Gly	Leu	Asp 60	Gly	Tyr	His	Ile

Gly Arg Asn Gln Phe Pro Phe Val Cys Gln Ala Arg Leu Trp Leu Leu 70 75 Gly Leu Gly Phe Ser Leu Gly Tyr Gly Ser Met Phe Thr Lys Ile Trp 85 Trp Val His Thr Val Phe Thr Lys Lys Glu Glu Lys Lys Glu Trp Arg 105 Lys Thr Leu Glu Pro Trp Lys Leu Tyr Ala Thr Val Gly Leu Leu Val 120 115 Gly Met Asp Val Leu Thr Leu Ala Ile Trp Gln Ile Val Asp Pro Leu 135 His Arg Thr Ile Glu Thr Phe Ala Lys Glu Glu Pro Lys Glu Asp Ile 150 Asp Val Ser Ile Leu Pro Gln Leu Glu His Cys Ser Ser Arg Lys Met Asn Thr Trp Leu Gly Ile Phe Tyr Gly Tyr Lys Gly Leu Leu Leu Leu 185 Leu Gly Ile Phe Leu Ala Tyr Glu Thr Lys Ser Val Ser Thr Glu Lys Ile Asn Asp His Arg Ala Val Gly Met Ala Ile Tyr Asn Val Ala Val 215 220 Leu Cys Leu Ile Thr Ala Pro Val Thr Met Ile Leu Ser Ser Gln Gln 235 230 Asp Ala Ala Phe Ala Phe Ala Ser Leu Ala Ile Val Phe Ser Ser Tyr 250

Ile Thr Leu Val Val Leu Phe Val Pro Lys Met 260 265

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Val Val Cys Leu Ser Phe Asn Ile Tyr Asn Ser His Val Arg Tyr Ile 20 25

Gln Asn Ser Gln Pro Asn Leu Asn Asn Leu Thr Ala Val Gly Cys Ser 40 45 35

Leu Ala Leu Ala Ala Val Phe Pro Leu Gly Leu Asp Gly Tyr His Ile 50 55 60

Gly Arg Asn Gln Phe Pro Phe Val Cys Gln Ala Arg Leu Trp Leu Leu 65 70 75 80

Gly Leu Gly Phe Ser Leu Gly Tyr Gly Ser Met Phe Thr Lys Ile Trp 85 90 95

Trp Val His Thr Val Phe Thr Lys Lys Glu Glu Lys Lys Glu Trp Arg
100 105 110

Lys Thr Leu Glu Pro Trp Lys Leu Tyr Ala Thr Val Gly Leu Leu Val 115 120 125

Gly Met Asp Val Leu Thr Leu Ala Ile Trp Gln Ile Val Asp Pro Leu 130 135 140

His Arg Thr Ile Glu Thr Phe Ala Lys Glu Glu Pro Lys Glu Asp Ile 145 150 155 160

Asp Val Ser Ile Leu Pro Gln Leu Glu His Cys Ser Ser Arg Lys Met 165 170 175

Asn Thr Trp Leu Gly Ile Phe Tyr Gly Tyr Lys Gly Leu Leu Leu 180 185 190

Leu Gly Ile Phe Leu Ala Tyr Glu Thr Lys Ser Val Ser Thr Glu Lys
195 200 205

Ile Asn Asp His Arg Ala Val Gly Met Ala Ile Tyr Asn Val Ala Val 210 215 220

Leu Cys Leu Ile Thr Ala Pro Val Thr Met Ile Leu Ser Ser Gln Gln 225 230 235 240

Asp Ala Ala Phe Ala Phe Ala Ser Leu Ala Ile Val Phe Ser Ser Tyr 245 250 255

Ile Thr Leu Val Val Leu Phe Val Pro Lys Met 260 265

<210> 9

<211> 264

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Leu Tyr Ser Ile Leu Ser Ala Leu Thr Ile Leu Gly Met Ile Met Ala 1 5 10 15

Ser	Ala	Phe	Leu	Phe	Phe	Asn	Ile	Lys	Asn	Arg	Asn	Gln	Lys	Leu	Ile
			20					25					30		

- Lys Met Ser Ser Pro Tyr Met Asn Asn Leu Ile Ile Leu Gly Gly Met 35 40 45
- Leu Ser Tyr Ala Ser Ile Phe Leu Phe Gly Leu Asp Gly Ser Phe Val 50 55 60
- Ser Glu Lys Thr Phe Glu Thr Leu Cys Thr Val Arg Thr Trp Ile Leu 65 70 75 80
- Thr Val Gly Tyr Thr Thr Ala Phe Gly Ala Met Phe Ala Lys Thr Trp 85 90 95
- Arg Val His Ala Ile Phe Lys Asn Val Lys Met Lys Lys Lys Ile Ile 100 105 110
- Lys Asp Gln Lys Leu Leu Val Ile Val Gly Gly Met Leu Leu Ile Asp 115 120 125
- Leu Cys Ile Leu Ile Cys Trp Gln Ala Val Asp Pro Leu Arg Arg Thr 130 135 140
- Val Glu Lys Tyr Ser Met Glu Pro Asp Pro Ala Gly Arg Asp Ile Ser 145 150 155 160
- Ile Arg Pro Leu Leu Glu His Cys Glu Asn Thr His Met Thr Ile Trp 165 170 175
- Leu Gly Ile Val Tyr Ala Tyr Lys Gly Leu Leu Met Leu Phe Gly Cys 180 185 190
- Phe Leu Ala Trp Glu Thr Arg Asn Val Ser Ile Pro Ala Leu Asn Asp 195 200 205
- Ser Lys Tyr Ile Gly Met Ser Val Tyr Asn Val Gly Ile Met Cys Ile 210 215 220
- Ile Gly Ala Ala Val Ser Phe Leu Thr Arg Asp Gln Pro Asn Val Gln 225 230 235 240
- Phe Cys Ile Val Ala Leu Val Ile Ile Phe Cys Ser Thr Ile Thr Leu 245 250 255

Cys Leu Val Phe Val Pro Lys Leu 260

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1 5 10 15

Phe Val Ile Val Thr Phe Val Arg Tyr Asn Asp Thr Pro Ile Val Arg
20 25 30

Ala Ser Gly Arg Glu Leu Ser Tyr Val Leu Leu Thr Gly Ile Phe Leu 35 40 45

Cys Tyr Ser Ile Thr Phe Leu Met Ile Ala Ala Pro Asp Thr Ile Ile 50 55 60

Cys Ser Phe Arg Arg Val Phe Leu Gly Leu Gly Met Cys Phe Ser Tyr 65 70 75 80

Ala Ala Leu Leu Thr Lys Thr Asn Arg Ile His Arg Ile Phe Glu Gln 85 90 95

Gly Lys Lys Ser Val Thr Ala Pro Lys Phe Ile Ser Pro Ala Ser Gln 100 105 110

Leu Val Ile Thr Phe Ser Leu Ile Ser Val Gln Leu Leu Gly Val Phe 115 120 125

Val Trp Phe Val Val Asp Pro Pro His Ile Ile Ile Asp Tyr Gly Glu 130 135 140

Ile Ser Asp Leu Ser Leu Ile Cys Ser Leu Gly Tyr Ser Ile Leu Leu 165 170 175

Met Val Thr Cys Thr Val Tyr Ala Ile Lys Thr Arg Gly Val Pro Glu 180 185 190

Thr Phe Asn Glu Ala Lys Pro Ile Gly Phe Thr Met Tyr Thr Thr Cys 195 200 205

Ile Ile Trp Leu Ala Phe Ile Pro Ile Phe Phe Gly Thr Ala Gln Ser 210 215 220

Ala Glu Lys Met Tyr Ile Gln Thr Thr Thr Leu Thr Val Ser Met Ser 225 230 235 240

Leu Ser Ala Ser Val Ser Leu Gly Met Leu Tyr Met Pro Lys Val Tyr
245 250 255

Ile Ile Ile Phe

260

<210> 11 <211> 216 <212> PRT <213> Human <400> 11

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His Ala Phe Lys Val Ala Ala Arg Ala Thr Leu Arg Arg Ser Asn Val

Ser Arg Lys Arg Ser Ser Ser Leu Gly Gly Ser Thr Gly Ser Thr Pro

Ser Ser Ser Ile Ser Ser Lys Ser Asn Ser Glu Asp Pro Phe Pro Gln 50 55 60

Pro Glu Arg Gln Lys Gln Gln Gln Pro Leu Ala Leu Thr Gln Gln Glu 65 70 75 80

Gln Gln Gln Pro Leu Thr Leu Pro Gln Gln Gln Arg Ser Gln Gln
85 90 95

Gln Pro Arg Cys Lys Gln Lys Val Ile Phe Gly Ser Gly Thr Val Thr 100 105 110

Phe Ser Leu Ser Phe Asp Glu Pro Gln Lys Asn Ala Met Ala His Gly 115 120 125

Asn Ser Thr His Gln Asn Ser Leu Glu Ala Gln Lys Ser Ser Asp Thr 130 135 140

Leu Thr Arg His Gln Pro Leu Leu Pro Leu Gln Cys Gly Glu Thr Asp 145 150 155 160

Leu Asp Leu Thr Val Gln Glu Thr Gly Leu Gln Gly Pro Val Gly Gly
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Asp Gln Arg Pro Glu Val Glu Asp Pro Glu Glu Leu Ser Pro Ala Leu 180 185 190

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<213> Human

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Glu Glu Arg Val Ser Glu Leu Arg His Gln Leu Gln Ser Arg Gln Gln 50 55 60

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Ser Arg Val His Leu Leu Tyr Lys 100

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Leu Leu Glu Lys Glu Asn Arg Glu Leu Glu Lys Ile Ile Ala Glu Lys 35 40 45

Glu Glu Arg Val Ser Glu Leu Arg His Gln Leu Gln Ser Arg Gln Gln
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Leu Arg Ser Arg Arg His Pro Pro Thr Pro Pro Glu Pro Ser Gly Gly 65 70 75 80

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Ser Arg Val His Leu Leu Tyr Lys 100

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Gln Phe Thr Gln Asn Gln Lys Lys Glu Asp Ser Lys Thr Ser Thr Ser 20 25 30

Val Thr Ser Val Asn Gln Ala Ser Thr Ser Arg Leu Glu Gly Leu Gln
35 40 45

Ser Glu Asn His Arg Leu Arg Met Lys Ile Thr Glu Leu Asp Lys Asp 50 55 60

Leu Glu Glu Val Thr Met Gln Leu Gln Asp Thr Pro Glu Lys Thr Thr 65 70 75 80

Tyr Ile Lys Gln Asn His Tyr Gln Glu Leu Asn Asp Ile Leu Asn Leu 85 90 95

Gly Asn Phe Thr Glu Ser Thr Asp Gly Gly Lys Ala Ile Leu Lys Asn 100 105 110

His Leu Asp Gln Asn Pro Gln Leu Gln Trp Asn Thr Thr Glu Pro Ser 115 120 125

Arg Thr Cys Lys Asp Pro Ile Glu Asp Ile Asn Ser Pro Glu His Ile 130 135 140

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Gly Pro Gly Glu Ser Gly Lys Ser Thr Phe Ile Lys Gln Met Arg Ile 50 60

Ile His Gly Val Gly Tyr Ser Glu Glu Asp Arg Arg Ala Phe Arg Leu 65 70 75 80

Leu Ile Tyr Gln Asn Ile Phe Val Ser Met Gln Ala Met Ile Asp Ala 85 90 95

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Ala Ser Leu Val Met Thr Gln Asp Pro Tyr Lys Val Ser Thr Phe Glu 115 120 125

Lys Pro Tyr Ala Val Ala Met Gln Tyr Leu Trp Arg Asp Ala Gly Ile 130 135 140

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Leu Phe Gly Thr Ile Leu Glu Leu Pro Trp Phe Lys Ser Thr Ser Val

265

260

270

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Ser His Leu Ala Thr Tyr Phe Pro Ser Phe Gln Gly Pro Lys Gln Asp 290 295 300

Ala Glu Ala Ala Lys Arg Phe Ile Leu Asp Met Tyr Thr Arg Met Tyr 305 310 315 320

Thr Gly Cys Val Asp Gly Pro Glu Gly Ser Lys Lys Gly Ala Arg Ser 325 330 335

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265

260

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His	Gln	Leu 915	Gln	Ser	Arg	Gln	Gln 920	Leu	Arg	Ser	Arg	Arg 925	His	Pro	Pro
Thr	Pro 930	Pro	Asp	Pro	Ser	Gly 935	Gly	Leu	Pro	Arg	Gly 940	Pro	Ser	Glu	Pro
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Pro	His	Leu 35	Pro	Arg	Pro	His	Pro 40	Arg	Val	Pro	Pro	His 45	Pro	Ser	Ser
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Tyr	Glu	Leu 115	Leu	Tyr	Asn	Asp	Pro 120	Ile	Lys	Ile	Ile	Leu 125	Met	Pro	Gly
Cys	Ser 130	Ser	Val	Ser	Thr	Leu 135	Val	Ala	Glu	Ala	Ala 140	Arg	Met	Trp	Asn
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Gln	Arg	Phe	Pro	Thr	Phe	Phe	Arg	Thr	His	Pro	Ser	Ala	Thr	Leu	His

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Ser 225	Phe	Phe	Ser	Asp	Pro 230	Ala	Val	Pro	Val	Lys 235	Asn	Leu	Lys	Arg	Gln 240
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	Leu			725					730					735	
	Pro	_	740	_	_			745					750		
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Phe Asn Glu Ala Lys Phe Ile Gly Phe Thr Met Tyr Thr Thr Cys Ile 810 Ile Trp Leu Ala Leu Leu Pro Ile Phe Tyr Val Thr Ser Ser Asp Tyr 825 Arg Val Gln Thr Thr Met Cys Val Ser Val Ser Leu Ser Gly Ser 835 840 Val Val Leu Gly Cys Leu Phe Ala Pro Lys Leu His Ile Ile Leu Phe 855 860 Gln Pro Gln Lys Asn Val Val Ser His Arg Ala Pro Thr Ser Arg Phe 880 875 865 870 Gly Ser Ala Ala Ala Arg Ala Ser Ser Ser Leu Gly Gln Gly Ser Gly 885 Ser Gln Phe Val Pro Thr Val Cys Asn Gly Arg Glu Val Val Asp Ser 905 Thr Thr Ser Ser Leu 915 <210> 32 <211> 3831

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1020

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Ile Asn Ser Ser Pro Ala Leu Leu Pro Asn Leu Thr Leu Gly Tyr Arg 85 90 95

Ile Phe Asp Thr Cys Asn Thr Val Ser Lys Ala Leu Glu Ala Thr Leu 100 105 110

Ser Phe Val Ala Gln Asn Lys Ile Asp Ser Leu Asn Leu Asp Glu Phe 115 120 125

Cys Asn Cys Ser Glu His Ile Pro Ser Thr Ile Ala Val Val Gly Ala 130 135 140

Thr Gly Ser Gly Val Ser Thr Ala Val Ala Asn Leu Leu Gly Leu Phe 145 150 155 160

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- Ile Ala Met Pro Gln Tyr Phe His Val Val Gly Gly Thr Ile Gly Phe 305 310 315 320
- Ala Leu Lys Ala Gly Gln Ile Pro Gly Phe Arg Glu Phe Leu Lys Lys 325 330 335
- Val His Pro Arg Lys Ser Val His Asn Gly Phe Ala Lys Glu Phe Trp 340 345 350
- Glu Glu Thr Phe Asn Cys His Leu Gln Glu Gly Ala Lys Gly Pro Leu 355 360 365
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- Ser Asn Ser Ser Thr Ala Phe Arg Pro Leu Cys Thr Gly Asp Glu Asn 385 390 395 400
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- Asp Ile Tyr Thr Cys Leu Pro Gly Arg Gly Leu Phe Thr Asn Gly Ser 435 440 445
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- Arg His Leu Asn Phe Thr Asn Asn Met Gly Glu Gln Val Thr Phe Asp 465 470 475 480
- Glu Cys Gly Asp Leu Val Gly Asn Tyr Ser Ile Ile Asn Trp His Leu 485 490 495
- Ser Pro Glu Asp Gly Ser Ile Val Phe Lys Glu Val Gly Tyr Tyr Asn 500 505 510
- Val Tyr Ala Lys Lys Gly Glu Arg Leu Phe Ile Asn Glu Glu Lys Ile 515 520 525
- Leu Trp Ser Gly Phe Ser Arg Glu Val Pro Phe Ser Asn Cys Ser Arg 530 540
- Asp Cys Leu Ala Gly Thr Arg Lys Gly Ile Ile Glu Gly Glu Pro Thr

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- Gly Ser Ala Ala Ala Arg Ala Ser Ser Ser Leu Gly Gln Gly Ser Gly 885 890 895
- Ser Gln Phe Val Pro Thr Val Cys Asn Gly Arg Glu Val Val Asp Ser 900 905 910
- Thr Thr Ser Ser Leu Met Thr Leu Glu Ser Ile Met Ala Cys Cys Leu 915 920 925
- Ser Glu Glu Ala Lys Glu Ala Arg Arg Ile Asn Asp Glu Ile Glu Arg 930 935 940
- Gln Leu Arg Arg Asp Lys Arg Asp Ala Arg Arg Glu Leu Lys Leu Leu 945 950 955 960
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- Arg Ile Ile His Gly Ser Gly Tyr Ser Asp Glu Asp Lys Arg Gly Phe 980 985 990
- Thr Lys Leu Val Tyr Gln Asn Ile Phe Thr Ala Met Gln Ala Met Ile 995 1000 1005
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- Gly Ile Gln Glu Cys Tyr Asp Arg Arg Glu Tyr Gln Leu Ser Asp 1060 1065 1070
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- Val Asp Val Gly Gln Arg Ser Glu Arg Arg Lys Trp Ile His Cys 1125 1130 1135
- Phe Glu Asn Val Thr Ser Ile Met Phe Leu Val Ala Leu Ser Glu Tyr 1140 1145 1150

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Met Tyr Ser His Leu Val Asp Tyr Phe Pro Glu Tyr Asp Gly Pro Gln 1205 1210 1215

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Phe Arq Cys Ser Phe Arq Gln Arq Asp Cys Ala Ala His Ser Leu Arq Ala Val Pro Phe Glu Gln Glu Ser Lys Ile Met Phe Val Val Asn Ala 375 Val Tyr Ala Met Ala His Ala Leu His Asn Met His Arg Ala Leu Cys 390 395 Pro Asn Thr Thr Arg Leu Cys Asp Ala Met Arg Pro Val Asn Gly Arg 410 Arg Leu Tyr Lys Asp Phe Val Leu Asn Val Lys Phe Asp Ala Pro Phe 425 430 420 Arg Pro Ala Asp Thr His Asn Glu Val Arg Phe Asp Arg Phe Gly Asp Gly Ile Gly Arg Tyr Asn Ile Phe Thr Tyr Leu Arg Ala Gly Ser Gly 455 Arg Tyr Arg Tyr Gln Lys Val Gly Tyr Trp Ala Glu Gly Leu Thr Leu 475 465 Asp Thr Ser Leu Ile Pro Trp Ala Ser Pro Ser Ala Gly Pro Leu Pro Ala Ser Arg Cys Ser Glu Pro Cys Leu Gln Asn Glu Val Lys Ser Val 500 505 510 Gln Pro Gly Glu Val Cys Cys Trp Leu Cys Ile Pro Cys Gln Pro Tyr Glu Tyr Arq Leu Asp Glu Phe Thr Cys Ala Asp Cys Gly Leu Gly Tyr 535 Trp Pro Asn Ala Ser Leu Thr Gly Cys Phe Glu Leu Pro Gln Glu Tyr 555 560 550 545 Ile Arg Trp Gly Asp Ala Trp Ala Val Gly Pro Val Thr Ile Ala Cys 565 570 Leu Gly Ala Leu Ala Thr Leu Phe Val Leu Gly Val Phe Val Arg His 585 Asn Ala Thr Pro Val Val Lys Ala Ser Gly Arg Glu Leu Cys Tyr Ile 600 Leu Leu Gly Gly Val Phe Leu Cys Tyr Cys Met Thr Phe Ile Phe Ile 610 Ala Lys Pro Ser Thr Ala Val Cys Thr Leu Arg Arg Leu Gly Leu Gly 635 Thr Ala Phe Ser Val Cys Tyr Ser Ala Leu Leu Thr Lys Thr Asn Arg

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Gly	Gln 690	Leu	Leu	Ile	Val	Val 695	Ala	Trp	Leu	Val	Val 700	Glu	Ala	Pro	Gly
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Cys	Asn	His	Arg	Asp 725	Ala	Ser	Met	Leu	Gly 730	Ser	Leu	Ala	Tyr	Asn 735	Val
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Pro	Glu	Asn 755	Phe	Asn	Glu	Ala	Lys 760	Phe	Ile	Gly	Phe	Thr 765	Met	Tyr	Thr
Thr	Cys 770	Ile	Ile	Trp	Leu	Ala 775	Phe	Leu	Pro	Ile	Phe 780	Tyr	Val	Thr	Ser
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Ile	Leu	Phe	Gln 820	Pro	Gln	Lys	Asn	Thr 825	Ile	Glu	Glu	Val	Arg 830	Cys	Ser
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Ser	Gln	Gln 915	Gln	Pro	Arg	Cys	Lys 920	Gln	Lys	Val	Ile	Phe 925	Gly	Ser	Gly
Thr	Val 930	Thr	Phe	Ser	Leu	Ser 935	Phe	Asp	Glu	Pro	Gln 940	Lys	Asn	Ala	Met

1035

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Glu Thr Asp Leu Asp Leu Thr Val Gln Glu Thr Gly Leu Gln Gly Pro
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Val Gly Gly Asp Gln Arg Pro Glu Val Glu Asp Pro Glu Glu Leu Ser
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Val	Leu	Gly 35	Gly	Leu	Phe	Pro	Val 40	His	Gln	Lys	Gly	Gly 45	Pro	Ala	Glu
Asp	Cys 50	Gly	Pro	Val	Asn	Glu 55	His	Arg	Gly	Ile	Gln 60	Arg	Leu	Glu	Ala
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Gly	Val	Arg	Leu	Gly 85	Ala	His	Ile	Leu	Asp 90	Ser	Cys	Ser	Lys	Asp 95	Thr
His	Ala	Leu	Glu 100	Gln	Ala	Leu	Asp	Phe 105	Val	Arg	Ala	Ser	Leu 110	Ser	Arg
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Pro	Gln	Ile	Ser	Tyr 165	Ala	Ser	Thr	Ser	Ala 170	Lys	Leu	Ser	Asp	Lys 175	Ser
Arg	Tyr	Asp	Tyr 180	Phe	Ala	Arg	Thr	Val 185	Pro	Pro	Asp	Phe	Phe 190	Gln	Ala
Lys	Ala	Met 195	Ala	Glu	Ile	Leu	Arg 200	Phe	Phe	Asn	Trp	Thr 205	Tyr	Val	Ser
Thr	Val 210	Ala	Ser	Glu	Gly	Asp 215	Tyr	Gly	Glu	Thr	Gly 220	Ile	Glu	Ala	Phe
Glu 225	Leu	Glu	Ala	Arg	Ala 230	Arg	Asn	Ile	Cys	Val 235	Ala	Thr	Ser	Glu	Lys 240
Val	Gly	Arg	Ala	Met 245	Ser	Arg	Ala	Ala	Phe 250	Glu	Gly	Val	Val	Arg 255	Ala
Leu	Leu	Gln	Lys 260	Pro	Ser	Ala	Arg	Val 265	Ala	Val	Leu	Phe	Thr 270	Arg	Ser
Glu	Asp	Ala 275	Arg	Glu	Leu	Leu	Ala 280	Ala	Ser	Gln	Arg	Leu 285	Asn	Ala	Ser

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Asn Ala Thr Pro Val Val Lys Ala Ser Gly Arg Glu Leu Cys Tyr Ile Leu Leu Gly Gly Val Phe Leu Cys Tyr Cys Met Thr Phe Ile Phe Ile 615 Ala Lys Pro Ser Thr Ala Val Cys Thr Leu Arg Arg Leu Gly Leu Gly 630 635 Thr Ala Phe Ser Val Cys Tyr Ser Ala Leu Leu Thr Lys Thr Asn Arg 650 Ile Ala Arg Ile Phe Gly Gly Ala Arg Glu Gly Ala Gln Arg Pro Arg 665 660 Phe Ile Ser Pro Ala Ser Gln Val Ala Ile Cys Leu Ala Leu Ile Ser Gly Gln Leu Leu Ile Val Val Ala Trp Leu Val Val Glu Ala Pro Gly 695 Thr Gly Lys Glu Thr Ala Pro Glu Arg Arg Glu Val Val Thr Leu Arg 705 Cys Asn His Arg Asp Ala Ser Met Leu Gly Ser Leu Ala Tyr Asn Val 725 730 Leu Leu Ile Ala Leu Cys Thr Leu Tyr Ala Phe Lys Thr Arg Lys Cys Pro Glu Asn Phe Asn Glu Ala Lys Phe Ile Gly Phe Thr Met Tyr Thr Thr Cys Ile Ile Trp Leu Ala Phe Leu Pro Ile Phe Tyr Val Thr Ser 775 Ser Asp Tyr Arg Val Gln Thr Thr Thr Met Cys Val Ser Val Ser Leu 790 795 Ser Gly Ser Val Val Leu Gly Cys Leu Phe Ala Pro Lys Leu His Ile 810 805 Ile Leu Phe Gln Pro Gln Lys Asn Thr Ile Glu Glu Val Arg Cys Ser 825 Thr Ala Ala His Ala Phe Lys Val Ala Ala Arg Ala Thr Leu Arg Arg 840 Ser Asn Val Ser Arg Lys Arg Ser Ser Ser Leu Gly Gly Ser Thr Gly 850 Ser Thr Pro Ser Ser Ser Ile Ser Ser Lys Ser Asn Ser Glu Asp Pro 870 875

Phe Pro Gln Pro Glu Arq Gln Lys Gln Gln Pro Leu Ala Leu Thr

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Gly 1025		Thr	Val	Thr	Glu 1030		Val	Val	Asn	Ser 1035		Thr	Leu	Glu	Ser 1040
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Δla	)				1110	)				1115	5				1120
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	Met			1125 Asn	Ile	Arg			1130 Gln	Thr	Leu	Lys Arg		1135 Val	Tyr
Lys	Met Tyr	Glu	His 1140 Val	1125 Asn	Ile 5 Lys	Arg Ala	His	Ala 1145 Asn	1130 Gln	Thr ) Leu	Leu Val		Glu 1150 Ala	1135 Val	Tyr S Asp

Glu Tyr Gln Leu Ser Asp Ser Thr Lys Tyr Tyr Leu Asn Asp Leu Asp 1185 1190 1195 1200

Arg Val Ala Asp Pro Ala Tyr Leu Pro Thr Gln Gln Asp Val Leu Arg 1205 1210 1215

Val Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr Pro Phe Asp Leu Gln 1220 1225 1230

Ser Val Ile Phe Arg Met Val Asp Val Gly Gln Arg Ser Glu Arg 1235 1240 1245

Arg Lys Trp Ile His Cys Phe Glu Asn Val Thr Ser Ile Met Phe Leu 1250 1255 1260

Val Ala Leu Ser Glu Tyr Asp Gln Val Leu Val Glu Ser Asp Asn Glu 1265 1270 1275 1280

Asn Arg Met Glu Glu Ser Lys Ala Leu Phe Arg Thr Ile Ile Thr Tyr 1285 1290 1295

Pro Trp Phe Gln Asn Ser Ser Val Ile Leu Phe Leu Asn Lys Lys Asp 1300 1305 1310

Leu Leu Glu Glu Lys Ile Met Tyr Ser His Leu Val Asp Tyr Phe Pro 1315 1320 1325

Glu Tyr Asp Gly Pro Gln Arg Asp Ala Gln Ala Ala Arg Glu Phe Ile 1330 1335 1340

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Ser His Phe Thr Cys Ala Thr Asp Thr Glu Asn Ile Arg Phe Val Phe 1365 1370 1375

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Tyr Ala Ile Asp Gln Ile Asn Lys Asp Pro Asp Leu Leu Ser Asn Ile 85 90 95

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Leu Glu Gln Ser Leu Thr Phe Val Gln Ala Leu Ile Glu Lys Asp Ala 115 120 125

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Ser Arg Val Val Pro Pro Asp Ser Tyr Gln Ala Gln Ala Met Val Asp 195 200 205

Ile Val Thr Ala Leu Gly Trp Asn Tyr Val Ser Thr Leu Ala Ser Glu 210 215 220

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- Arg Ile Leu Glu Ala Ala Lys Lys Leu Asn Gln Ser Gly His Phe Leu 290 295 300
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- Cys Lys Leu Gly Ser His Gly Lys Arg Asn Ser His Ile Lys Lys Cys 370 380
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Phe Thr Met Tyr Thr Thr Cys Ile Ile Trp Leu Ala Phe Ile Pro Ile 785 790 795 800

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Cys Lys Leu Gly Ser His Gly Lys Arg Asn Ser His Ile Lys Lys Cys 370 380

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Tyr	Glu 210	Leu	Lys	Leu	Ile	His 215	His	Asp	Ser	Lys	Cys 220	Asp	Pro	Gly	Glr
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Asn Gln Phe Pro Phe Val Cys Gln Ala Arq Leu Trp Leu Leu Gly Leu Gly Phe Ser Leu Gly Tyr Gly Ser Met Phe Thr Lys Ile Trp Trp Val His Thr Val Phe Thr Lys Lys Glu Glu Lys Lys Glu Trp Arg Lys Thr Leu Glu Pro Trp Lys Leu Tyr Ala Thr Val Gly Leu Leu Val Gly Met 715 Asp Val Leu Thr Leu Ala Ile Trp Gln Ile Val Asp Pro Leu His Arg 730 725 Thr Ile Glu Thr Phe Ala Lys Glu Glu Pro Lys Glu Asp Ile Asp Val 745 Ser Ile Leu Pro Gln Leu Glu His Cys Ser Ser Arg Lys Met Asn Thr 760 Trp Leu Gly Ile Phe Tyr Gly Tyr Lys Gly Leu Leu Leu Leu Gly 775 Ile Phe Leu Ala Tyr Glu Thr Lys Ser Val Ser Thr Glu Lys Ile Asn 790 795 785 Asp His Arg Ala Val Gly Met Ala Ile Tyr Asn Val Ala Val Leu Cys 805 Leu Ile Thr Ala Pro Val Thr Met Ile Leu Ser Ser Gln Gln Asp Ala 825 Ala Phe Ala Phe Ala Ser Leu Ala Ile Val Phe Ser Ser Tyr Ile Thr 835 840 Leu Val Val Leu Phe Val Pro Lys Met Arg Arg Leu Ile Thr Arg Gly 855 Glu Trp Gln Ser Glu Ala Gln Asp Thr Met Lys Thr Gly Ser Ser Thr 870 875 Asn Asn Asn Glu Glu Lys Ser Arg Leu Leu Glu Lys Glu Asn Arg 885 Glu Leu Glu Lys Ile Ile Ala Glu Lys Glu Glu Arg Val Ser Glu Leu 905 Arg His Gln Leu Gln Ser Arg Gln Gln Leu Arg Ser Arg Arg His Pro 915 Pro Thr Pro Pro Glu Pro Ser Gly Gly Leu Pro Arg Gly Pro Pro Glu

Pro Pro Asp Arg Leu Ser Cys Asp Gly Ser Arg Val His Leu Leu Tyr

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Leu	Gly 1010		Gly	Glu	Ser	Gly 1019	_	Ser	Thr	Phe	Ile 1020	Lys	Gln	Met	Arg
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His	Ala	Gln 1075		Val	Arg	Glu	Val 1080		Val	Glu	Lys	Val 1085		Ala	Phe
Glu	Asn 1090		Tyr	Val	Asp	Ala 1099		Lys	Ser	Leu	Trp	Asn )	Asp	Pro	Gly
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Gln	Val	Leu	Val	Glu 1205		Asp	Asn	Glu	Asn 121		Met	Glu	Glu	Ser 121	
Ala	Leu	Phe	Arg 1220		Ile	Ile	Thr	Tyr 1225		Trp	Phe	Gln	Asn 1230		Ser
Val	Ile	Leu 1235		Leu	Asn	Lys	Lys 1240		Leu	Leu	Glu	Glu 1245		Ile	Met

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Asn Pro Asp Ser Asp Lys Ile Ile Tyr Ser His Phe Thr Cys Ala Thr 1285 1290 1295

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- Asp Cys Gly Pro Val Asn Glu His Arg Gly Ile Gln Arg Leu Glu Ala 50 55 60
- Met Leu Phe Ala Leu Asp Arg Ile Asn Arg Asp Pro His Leu Leu Pro 65 70 75 80
- Gly Val Arg Leu Gly Ala His Ile Leu Asp Ser Cys Ser Lys Asp Thr 85 90 95
- His Ala Leu Glu Gln Ala Leu Asp Phe Val Arg Ala Ser Leu Ser Arg 100 105 110
- Gly Ala Asp Gly Ser Arg His Ile Cys Pro Asp Gly Ser Tyr Ala Thr 115 120 125
- His Gly Asp Ala Pro Thr Ala Ile Thr Gly Val Ile Gly Gly Ser Tyr 130 135 140
- Ser Asp Val Ser Ile Gln Val Ala Asn Leu Leu Arg Leu Phe Gln Ile 145 150 155 160
- Pro Gln Ile Ser Tyr Ala Ser Thr Ser Ala Lys Leu Ser Asp Lys Ser 165 170 175
- Arg Tyr Asp Tyr Phe Ala Arg Thr Val Pro Pro Asp Phe Phe Gln Ala 180 185 190
- Lys Ala Met Ala Glu Ile Leu Arg Phe Phe Asn Trp Thr Tyr Val Ser 195 200 205
- Thr Val Ala Ser Glu Gly Asp Tyr Gly Glu Thr Gly Ile Glu Ala Phe 210 215 220
- Glu Leu Glu Ala Arg Ala Arg Asn Ile Cys Val Ala Thr Ser Glu Lys 225 230 235 240
- Val Gly Arg Ala Met Ser Arg Ala Ala Phe Glu Gly Val Val Arg Ala 245 250 255
- Leu Leu Gln Lys Pro Ser Ala Arg Val Ala Val Leu Phe Thr Arg Ser 260 265 270
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- Ala Gly Ser Glu Gly Ala Ala Glu Gly Ala Ile Thr Ile Glu Leu Ala

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Leu Glu Ala Gln Lys Ser 955 960

Leu Pro Leu Gln Cys Gly 975

ı Thr Gly Leu Gln Gly Pro 990

ı Asp Pro Glu Glu Leu Ser 1005

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ı Leu Gly Thr Gly Glu Ser 1085

Ile Ile His Gly Ser Gly

r Lys Leu Val Tyr Gln Asn 1115 1120

g Ala Met Asp Thr Leu Lys 80 1135

a His Ala Gln Leu Val Arg 1150

e Glu Asn Pro Tyr Val Asp 1165

Ile Gln Glu Cys Tyr Asp 1180

r Thr Lys Tyr Tyr Leu Asn 1195 1200

Leu Pro Thr Gln Gln Asp

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Val Leu Arg Val Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr Pro Phe 1220 1230

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Gly Glu Leu Lys Lys Glu Lys Gly Ile His Arg Leu Glu Ala Met Leu 65 70 75 80

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Glu Arg Val Val Gly Val Ile Gly Ala Ser Gly Ser Ser Val Ser Ile
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Met Val Ala Asn Ile Leu Arg Leu Phe Lys Ile Pro Gln Ile Ser Tyr
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Ala Ser Thr Ala Pro Asp Leu Ser Asp Asn Ser Arg Tyr Asp Phe Phe
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Ser Arg Val Val Pro Ser Asp Thr Tyr Gln Ala Gln Ala Met Val Asp
                            200
Ile Val Arg Ala Leu Lys Trp Asn Tyr Val Ser Thr Val Ala Ser Glu
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                       215
Gly Ser Tyr Gly Glu Ser Gly Val Glu Ala Phe Ile Gln Lys Ser Arg
                                        235
                    230
Glu Asp Gly Gly Val Cys Ile Ala Gln Ser Val Lys Ile Pro Arg Glu
                                    250
                245
Pro Lys Ala Gly Glu Phe Asp Lys Ile Ile Arg Arg Leu Leu Glu Thr
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           260
Ser Asn Ala Arg Ala Val Ile Ile Phe Ala Asn Glu Asp Asp Ile Arg
                            280
Arg Val Leu Glu Ala Ala Arg Arg Ala Asn Gln Thr Gly His Phe Phe
                                            300
                        295
Trp Met Gly Ser Asp Ser Trp Gly Ser Lys Ile Ala Pro Val Leu His
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                                        315
Leu Glu Glu Val Ala Glu Gly Ala Val Thr Ile Leu Pro Lys Arg Met
                                    330
Ser Val Arg Gly Phe Asp Arg Tyr Phe Ser Ser Arg Thr Leu Asp Asn
                                345
            340
Asn Arg Arg Asn Ile Trp Phe Ala Glu Phe Trp Glu Asp Asn Phe His
                            360
Cys Lys Leu Ser Arg His Ala Leu Lys Lys Gly Ser His Val Lys Lys
                       375
                                            380
Cys Thr Asn Arg Glu Arg Ile Gly Gln Asp Ser Ala Tyr Glu Gln Glu
                    390
                                        395
Gly Lys Val Gln Phe Val Ile Asp Ala Val Tyr Ala Met Gly His Ala
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                                    410
Leu His Ala Met His Arg Asp Leu Cys Pro Gly Arg Val Gly Leu Cys
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Pro Arg Met Asp Pro Val Asp Gly Thr Gln Leu Leu Lys Tyr Ile Arg
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Asn Val Asn Phe Ser Gly Ile Ala Gly Asn Pro Val Thr Phe Asn Glu
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                                            460
Asn Gly Asp Ala Pro Gly Arg Tyr Asp Ile Tyr Gln Tyr Gln Leu Arg
                    470
                                        475
Asn Asp Ser Ala Glu Tyr Lys Val Ile Gly Ser Trp Thr Asp His Leu
                485
                                    490
His Leu Arg Ile Glu Arg Met His Trp Pro Gly Ser Gly Gln Gln Leu
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                                                    510
Pro Arg Ser Ile Cys Ser Leu Pro Cys Gln Pro Gly Glu Arg Lys Lys
                            520
Thr Val Lys Gly Met Pro Cys Cys Trp His Cys Glu Pro Cys Thr Gly
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Tyr Gln Tyr Gln Val Asp Arq Tyr Thr Cys Lys Thr Cys Pro Tyr Asp
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Met Arg Pro Thr Glu Asn Arg Thr Gly Cys Arg Pro Ile Pro Ile Ile
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               565
Lys Leu Glu Trp Gly Ser Pro Trp Ala Val Leu Pro Leu Phe Leu Ala
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           580
Val Val Gly Ile Ala Ala Thr Leu Phe Val Val Ile Thr Phe Val Arg
                           600
                                               605
Tyr Asn Asp Thr Pro Ile Val Lys Ala Ser Gly Arg Glu Leu Ser Tyr
                                          620
                       615
Val Leu Leu Ala Gly Ile Phe Leu Cys Tyr Ala Thr Thr Phe Leu Met
                           635
Ile Ala Glu Pro Asp Leu Gly Thr Cys Ser Leu Arg Arg Ile Phe Leu
                                   650
                645
Gly Leu Gly Met Ser Ile Ser Tyr Ala Ala Leu Leu Thr Lys Thr Asn
                               665
Arg Ile Tyr Arg Ile Phe Glu Gln Gly Lys Arg Ser Val Ser Ala Pro
                           680
Arq Phe Ile Ser Pro Ala Ser Gln Leu Ala Ile Thr Phe Ser Leu Ile
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                       695
Ser Leu Gln Leu Leu Gly Ile Cys Val Trp Phe Val Val Asp Pro Ser
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                   710
His Ser Val Val Asp Phe Gln Asp Gln Arg Thr Leu Asp Pro Arg Phe
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Arg Val Leu Lys Cys Asp Ile Ser Asp Leu Ser Leu Ile Cys Leu Leu
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Gly Tyr Ser Met Leu Leu Met Val Thr Cys Thr Val Tyr Ala Ile Lys
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Thr Arg Gly Val Pro Glu Thr Phe Asn Glu Ala Lys Pro Ile Gly Phe
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                       775
Thr Met Tyr Thr Thr Cys Ile Val Trp Leu Ala Phe Ile Pro Ile Phe
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                                       795
Phe Gly Thr Ser Gln Ser Ala Asp Lys Leu Tyr Ile Gln Thr Thr Thr
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Leu Thr Val Ser Val Ser Leu Ser Ala Ser Val Ser Leu Gly Met Leu
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           820
Tyr Met Pro Lys Val Tyr Ile Ile Leu Phe His Pro Glu Gln Asn Val
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                           840
Pro Lys Arg Lys Arg Ser Leu Lys Ala Val Val Thr Ala Ala Thr Met
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Ser Asn Lys Phe Thr Gln Lys Gly Asn Phe Arg Pro Asn Gly Glu Ala
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                                       875
Lys Ser Glu Leu Cys Glu Asn Leu Glu Ala Pro Ala Thr Lys Gln Thr
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Tyr Val Thr Tyr Thr Asn His Ala Ile
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475
465
                    470
Asn Asp Ser Ala Glu Tyr Lys Val Ile Gly Ser Trp Thr Asp His Leu
                                    490
                485
His Leu Arg Ile Glu Arg Met His Trp Pro Gly Ser Gly Gln Gln Leu
                                505
Pro Arg Ser Ile Cys Ser Leu Pro Cys Gln Pro Gly Glu Arg Lys
                            520
Thr Val Lys Gly Met Pro Cys Cys Trp His Cys Glu Pro Cys Thr Gly
                        535
Tyr Gln Tyr Gln Val Asp Arg Tyr Thr Cys Lys Thr Cys Pro Tyr Asp
                                        555
                   550
Met Arg Pro Thr Glu Asn Arg Thr Gly Cys Arg Pro Ile Pro Ile Ile
                                    570
                565
Lys Leu Glu Trp Gly Ser Pro Trp Ala Val Leu Pro Leu Phe Leu Ala
                                585
Val Val Gly Ile Ala Ala Thr Leu Phe Val Val Ile Thr Phe Val Arg
                            600
Tyr Asn Asp Thr Pro Ile Val Lys Ala Ser Gly Arg Glu Leu Ser Tyr
                        615
Val Leu Leu Ala Gly Ile Phe Leu Cys Tyr Ala Thr Thr Phe Leu Met
                                        635
                   630
Ile Ala Glu Pro Asp Leu Gly Thr Cys Ser Leu Arg Arg Ile Phe Leu
                645
                                    650
Gly Leu Gly Met Ser Ile Ser Tyr Ala Ala Leu Leu Thr Lys Thr Asn
                               665
Arg Ile Tyr Arg Ile Phe Glu Gln Gly Lys Arg Ser Val Ser Ala Pro
                            680
        675
Arg Phe Ile Ser Pro Ala Ser Gln Leu Ala Ile Thr Phe Ser Leu Ile
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                        695
Ser Leu Gln Leu Leu Gly Ile Cys Val Trp Phe Val Val Asp Pro Ser
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                    710
His Ser Val Val Asp Phe Gln Asp Gln Arg Thr Leu Asp Pro Arg Phe
                                   730
Arg Val Leu Lys Cys Asp Ile Ser Asp Leu Ser Leu Ile Cys Leu Leu
           740
                                745
Gly Tyr Ser Met Leu Leu Met Val Thr Cys Thr Val Tyr Ala Ile Lys
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Thr Arq Gly Val Pro Glu Thr Phe Asn Glu Ala Lys Pro Ile Gly Phe
                        775
                                            780
Thr Met Tyr Thr Thr Cys Ile Val Trp Leu Ala Phe Ile Pro Ile Phe
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Phe Gly Thr Ser Gln Ser Ala Asp Lys Leu Tyr Ile Gln Thr Thr Thr
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Leu Thr Val Ser Val Ser Leu Ser Ala Ser Val Ser Leu Gly Met Leu
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                                825
Tyr Met Pro Lys Val Tyr Ile Ile Leu Phe His Pro Glu Gln Asn Thr
                            840
                                                845
Ile Glu Glu Val Arg Cys Ser Thr Ala Ala His Ala Phe Lys Val Ala
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                        855
Ala Arg Ala Thr Leu Arg Arg Ser Asn Val Ser Arg Lys Arg Ser Ser
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                                        875
Ser Leu Gly Gly Ser Thr Gly Ser Thr Pro Ser Ser Ser Ile Ser Ser
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Lys Ser Asn Ser Glu Asp Pro Phe Pro Gln Pro Glu Arg Gln Lys Gln
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                                                    910
Gln Gln Pro Leu Ala Leu Thr Gln Gln Gln Gln Gln Gln Pro Leu
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                            920
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Thr Leu Pro Gln Gln Gln Arg Ser Gln Gln Gln Pro Arg Cys Lys Gln
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Lys Val Ile Phe Gly Ser Gly Thr Val Thr Phe Ser Leu Ser Phe Asp
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                950
Glu Pro Gln Lys Asn Ala Met Ala His Gly Asn Ser Thr His Gln Asn
                            970
            965
Ser Leu Glu Ala Gln Lys Ser Ser Asp Thr Leu Thr Arg His Gln Pro
                       985
Leu Leu Pro Leu Gln Cys Gly Glu Thr Asp Leu Asp Leu Thr Val Gln
                      1000 1005
Glu Thr Gly Leu Gln Gly Pro Val Gly Gly Asp Gln Arg Pro Glu Val
                  1015 1020
Glu Asp Pro Glu Glu Leu Ser Pro Ala Leu Val Val Ser Ser Ser Gln
                                1035
                1030
Ser Phe Val Ile Ser Gly Gly Gly Ser Thr Val Thr Glu Asn Val Val
                             1050
             1045
Asn Ser Ala Ala Ala Met Thr Leu Glu Ser Ile Met Ala Cys Cys Leu
                         1065
                                          1070
Ser Glu Glu Ala Lys Glu Ala Arg Arg Ile Asn Asp Glu Ile Glu Arg
                            1085
                      1080
Gln Leu Arg Arg Asp Lys Arg Asp Ala Arg Arg Glu Leu Lys Leu Leu
  1090 1095 1100
Leu Leu Gly Thr Gly Glu Ser Gly Lys Ser Thr Phe Ile Lys Gln Met
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Arg Ile Ile His Gly Ser Gly Tyr Ser Asp Glu Asp Lys Arg Gly Phe
                   1130 1135
            1125
Thr Lys Leu Val Tyr Gln Asn Ile Phe Thr Ala Met Gln Ala Met Ile
                          1145
                                          1150
         1140
Arg Ala Met Asp Thr Leu Lys Ile Pro Tyr Lys Tyr Glu His Asn Lys
     1155 1160 1165
Ala His Ala Gln Leu Val Arg Glu Val Asp Val Glu Lys Val Ser Ala
                                   1180
                   1175
Phe Glu Asn Pro Tyr Val Asp Ala Ile Lys Ser Leu Trp Asn Asp Pro
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                                1195
Gly Ile Gln Glu Cys Tyr Asp Arg Arg Glu Tyr Gln Leu Ser Asp
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Ser Thr Lys Tyr Tyr Leu Asn Asp Leu Asp Arg Val Ala Asp Pro Ala
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Tyr Leu Pro Thr Gln Gln Asp Val Leu Arg Val Arg Val Pro Thr Thr
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Gly Ile Ile Glu Tyr Pro Phe Asp Leu Gln Ser Val Ile Phe Arg Met
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                                   1260
Val Asp Val Gly Gln Arg Ser Arg Lys Trp Ile His Cys Phe Glu
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                                1275
Asn Val Thr Ser Ile Met Phe Leu Val Ser Glu Tyr Asp Gln Val Leu
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            1285
Val Glu Ser Asp Asn Glu Asn Arg Met Glu Glu Ser Lys Ala Leu Phe
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                         1305
Arg Thr Ile Ile Thr Tyr Pro Trp Phe Gln Asn Ser Ser Val Ile Leu
    1315 1320
                                      1325
Phe Leu Asn Lys Lys Asp Leu Leu Glu Glu Lys Ile Met Tyr Ser His
   1330 1335 1340
Leu Val Asp Tyr Phe Pro Glu Tyr Asp Gly Pro Gln Arg Asp Ala Gln
               1350 1355
Ala Ala Arg Glu Phe Ile Leu Lys Met Phe Val Asp Leu Asn Pro Asp
                             1370
             1365
Ser Asp Lys Ile Ile Tyr Ser His Phe Thr Cys Ala Thr Asp Thr Glu
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345

340

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Arg Asn Val Trp Phe Ala Glu Phe Trp Glu Glu Asn Phe Gly Cys Lys
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Leu Gly Ser His Gly Lys Arg Asn Ser His Ile Lys Lys Cys Thr Gly
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Leu Glu Arg Ile Ala Arg Asp Ser Ser Tyr Glu Gln Glu Gly Lys Val
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                   390
Gln Phe Val Ile Asp Ala Val Tyr Ser Met Ala Tyr Ala Leu His Asn
                                    410
               405
Met His Lys Asp Leu Cys Pro Gly Tyr Ile Gly Leu Cys Pro Arg Met
                               425
           420
Ser Thr Ile Asp Gly Lys Glu Leu Leu Gly Tyr Ile Arg Ala Val Asn
                            440
Phe Asn Gly Ser Ala Gly Thr Pro Val Thr Phe Asn Glu Asn Gly Asp
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                        455
Ala Pro Gly Arg Tyr Asp Ile Phe Gln Tyr Gln Ile Thr Asn Lys Ser
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                                        475
Thr Glu Tyr Lys Val Ile Gly His Trp Thr Asn Gln Leu His Leu Lys
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Val Glu Asp Met Gln Trp Ala His Arg Glu His Thr His Pro Ala Ser
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Val Cys Ser Leu Pro Cys Lys Pro Gly Glu Arg Lys Lys Thr Val Lys
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                                               525
Gly Val Pro Cys Cys Trp His Cys Glu Arg Cys Glu Gly Tyr Asn Tyr
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                                           540
Gln Val Asp Glu Leu Ser Cys Glu Leu Cys Pro Leu Asp Gln Arg Pro
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                   550
Asn Met Asn Arg Thr Gly Cys Gln Leu Ile Pro Ile Ile Lys Leu Glu
                                    570
Trp His Ser Pro Trp Ala Val Val Pro Val Phe Val Ala Ile Leu Gly
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            580
Ile Ile Ala Thr Thr Phe Val Ile Val Thr Phe Val Arg Tyr Asn Asp
                            600
                                               605
Thr Pro Ile Val Arg Ala Ser Gly Arg Glu Leu Ser Tyr Val Leu Leu
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                                           620
Thr Gly Ile Phe Leu Cys Ile Thr Phe Leu Met Ile Ala Ala Pro Asp
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Thr Ile Ile Cys Ser Phe Arg Arg Val Phe Leu Gly Leu Gly Met Cys
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               645
Phe Ser Tyr Ala Ala Leu Leu Thr Lys Thr Asn Arg Ile His Arg Ile
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Phe Glu Gln Gly Lys Lys Ser Val Thr Ala Pro Lys Phe Ile Ser Pro
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                                                685
Ala Ser Gln Leu Val Ile Thr Phe Ser Leu Ile Ser Val Gln Leu Leu
                        695
                                            700
Gly Val Phe Val Trp Phe Val Val Asp Pro Pro His Ile Ile Asp
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                                        715
Tyr Gly Glu Gln Arg Thr Leu Asp Pro Glu Lys Arg Val Leu Lys Cys
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Asp Ile Ser Asp Leu Ser Leu Ile Cys Ser Leu Gly Tyr Ser Ile Leu
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Leu Met Val Thr Cys Thr Val Tyr Ala Ile Lys Thr Arg Gly Val Pro
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Glu Thr Phe Asn Glu Ala Lys Pro Ile Gly Phe Thr Met Tyr Thr Thr
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                                            780
Cys Ile Ile Trp Leu Ala Phe Ile Pro Ile Phe Phe Gly Thr Ala Gln
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                                        795
Ser Ala Glu Lys Met Tyr Ile Gln Thr Thr Thr Leu Thr Val Ser Met
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810
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Ser Leu Ser Ala Ser Val Ser Leu Gly Met Leu Tyr Met Pro Lys Val
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           820
Tyr Ile Ile Ile Phe His Pro Glu Gln Asn Thr Ile Glu Glu Val Arg
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                         840
Cys Ser Thr Ala Ala His Ala Phe Lys Val Ala Ala Arg Ala Thr Leu
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                     855
Arg Arg Ser Asn Val Ser Arg Lys Arg Ser Ser Leu Gly Gly Ser
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                                    875
Thr Gly Ser Thr Pro Ser Ser Ser Ile Ser Ser Lys Ser Asn Ser Glu
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Asp Pro Phe Pro Gln Pro Glu Arg Gln Lys Gln Gln Gln Pro Leu Ala
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Leu Thr Gln Gln Gln Gln Gln Pro Leu Thr Leu Pro Gln Gln
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                          920
Gln Arg Ser Gln Gln Gln Pro Arg Cys Lys Gln Lys Val Ile Phe Gly
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Ser Gly Thr Val Thr Phe Ser Leu Ser Phe Asp Glu Pro Gln Lys Asn
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                                    955
Ala Met Ala His Gly Asn Ser Thr His Gln Asn Ser Leu Glu Ala Gln
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Lys Ser Ser Asp Thr Leu Thr Arg His Gln Pro Leu Leu Pro Leu Gln
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Cys Gly Glu Thr Asp Leu Asp Leu Thr Val Gln Glu Thr Gly Leu Gln
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Gly Pro Val Gly Gly Asp Gln Arg Pro Glu Val Glu Asp Pro Glu Glu
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   1010
Leu Ser Pro Ala Leu Val Val Ser Ser Gln Ser Phe Val Ile Ser
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Gly Gly Gly Ser Thr Val Thr Glu Asn Val Val Asn Ser Ala Ala Ala
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Met Thr Leu Glu Ser Ile Met Ala Cys Cys Leu Ser Glu Glu Ala Lys
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Glu Ala Arg Arg Ile Asn Asp Glu Ile Glu Arg Gln Leu Arg Arg Asp
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Lys Arg Asp Ala Arg Arg Glu Leu Lys Leu Leu Leu Gly Thr Gly
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Glu Ser Gly Lys Ser Thr Phe Ile Lys Gln Met Arg Ile Ile His Gly
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    1110
Ser Gly Tyr Ser Asp Glu Asp Lys Arg Gly Phe Thr Lys Leu Val Tyr
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              1125
Gln Asn Ile Phe Thr Ala Met Gln Ala Met Ile Arg Ala Met Asp Thr
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           1140
                             1145
Leu Lys Ile Pro Tyr Lys Tyr Glu His Asn Lys Ala His Ala Gln Leu
                         1160
                                            1165
      1155
Val Arg Glu Val Asp Val Glu Lys Val Ser Ala Phe Glu Asn Pro Tyr
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                                        1180
Val Asp Ala Ile Lys Ser Leu Trp Asn Asp Pro Gly Ile Gln Glu Cys
                                    1195
                  1190
Tyr Asp Arg Arg Arg Glu Tyr Gln Leu Ser Asp Ser Thr Lys Tyr Tyr
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                                 1210
Leu Asn Asp Leu Asp Arg Val Ala Asp Pro Ala Tyr Leu Pro Thr Gln
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          1220
                             1225
Gln Asp Val Leu Arq Val Arg Val Pro Thr Thr Gly Ile Ile Glu Tyr
                         1240
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Pro Phe Asp Leu Gln Ser Val Ile Phe Arg Met Val Asp Val Gly Gly
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   1250
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Gln Arg Ser Arg Lys Trp Ile His Cys Phe Glu Asn Val Thr Ser Ile 1265 1270 1275 Met Phe Leu Val Ser Glu Tyr Asp Gln Val Leu Val Glu Ser Asp Asn 1290 1285 Glu Asn Arg Met Glu Glu Ser Lys Ala Leu Phe Arg Thr Ile Ile Thr 1300 1305 1310 Tyr Pro Trp Phe Gln Asn Ser Ser Val Ile Leu Phe Leu Asn Lys Lys 1315 1320 1325 Asp Leu Leu Glu Glu Lys Ile Met Tyr Ser His Leu Val Asp Tyr Phe 1330 1335 1340 Pro Glu Tyr Asp Gly Pro Gln Arg Asp Ala Gln Ala Arg Glu Phe 1355 1350 Ile Leu Lys Met Phe Val Asp Leu Asn Pro Asp Ser Asp Lys Ile Ile 1370 1365 Tyr Ser His Phe Thr Cys Ala Thr Asp Thr Glu Asn Ile Arg Phe Val 1390 1380 1385 Phe Ala Ala Val Lys Asp Thr Ile Leu Gln Leu Asn Leu Lys Asp Cys 1400 1395 Gly Leu Phe 1410